

Md. Bipul Islam

Kanchabari Moulovipara, Ward – 4, Lohanipara - 5431, Badarganj, Rangpur, Bangladesh
+8801777833756 · Email: bipulhstu@gmail.com · [GitHub](#) · [LinkedIn](#) · [LeetCode](#)

Research Interests

Artificial Intelligence · Machine Learning · Pattern Recognition · Data Science, Data Visualization · Deep Learning
Computer Vision · Natural Language Processing · Data Mining and Big Data Analytics · Large Language Models (LLMs)

Academic Credentials

M.Sc. (Engineering) in Computer Science and Engineering,

July 2026 (Expected)

Hajee Mohammad Danesh Science and Technology University, Dinajpur, Bangladesh

Thesis Supervisor: [Dr. Ashis Kumar Mandal](#)

CGPA: 3.87/ 4.00 (First Semester)

B.Sc. (Engineering) in Electrical and Electronic Engineering,

December 2019

Hajee Mohammad Danesh Science and Technology University, Dinajpur, Bangladesh

CGPA: 2.92 / 4.00

Research Experience

Research Assistant, Computer Science Lab, HSTU

Jan 2025 - Present

- Conducting research in AI, Machine Learning, and Deep Learning, focusing on representation learning and transfer learning across diverse datasets.
- Evaluating pre-trained models (Kinetics-400, MiT, LLMs) using strategies such as full fine-tuning, linear probing, and few-shot learning.
- Applying methods in Computer Vision and NLP with PyTorch, TensorFlow, Hugging Face, spaCy, and PySpark for large-scale experiments and analysis.

Technical Strengths Standardized Test Scores

- **AI & Data Science:** NumPy, Pandas, Matplotlib, Seaborn, SciPy, Scikit-learn, PyTorch, Tensorflow, Hugging Face Transformers, spaCy, OpenCV, PySpark
- **Programming Languages:** C, C++, Java, Kotlin, Python, Swift, Dart
- **Research & Data Tools:** Jupyter Notebook, Google Colab, LaTeX, MATLAB, R
- **Database & Big Data:** MySQL, PostgreSQL, MongoDB, Hadoop, Spark
- **Software Development:** Android App (Java, Kotlin, Flutter), iOS App (Swift, Objective-C, Flutter)
- **REST API Development:** Spring Boot (Java, Kotlin), Ktor (Kotlin), Django, Fast API (Python)
- **Additional Skills:** Statistical Analysis, Data Processing, Feature Engineering, Technical Writing, Academic Presentations

Standardized Test Scores

Graduate Record Examination (GRE) – 15th February, 2024

Total	Quantitative	Verbal	Analytical Writing
305	159	146	3.5

Duolingo English Test (DET) – 13th January, 2024

Overall	Literacy	Comprehension	Conversation	Production
120	115	135	110	95

Work Experiences

1. Software Engineer (Android & iOS) – Team Leader

Walton Digi-Tech Industries Ltd, Dhaka, Bangladesh

Mar 2022 – Dec 2024

- Led development of cross-platform apps, including Bench Educational App & HRMS, for internal use and clients.
- Built IoT-based Android apps for Walton Tick Smart Watch and FitPro Smart Weight Scale, enabling real-time device communication and data analytics.
- Managed app lifecycle, REST API integration, cloud sync, and mentored junior developers.

2. Android Application Developer

Hovata Technologies, Dhaka, Bangladesh

Jan 2020 – Feb 2022

- Developed IoT-based Android apps including Digital Petrol Pump (Petrol ERP & POS), Smart Parking Management System (Hovata Parking), and Smart Wallet Management App (Linn Books).
- Implemented real-time device communication, secure transactions, and cloud integration for digital solutions.

Teaching Experience

Private Instructor

Jan 2023 - Present

- Mentor students individually and teach Computer Programming (C, C++, Java, Python) to undergraduate and high school level students.
- I teach professional Android & iOS app development with projects and help my students to secure jobs.
- I design and deliver coursework on Data Structures and Algorithms, focusing on problem-solving and optimization techniques.
- I provide hands-on training in Python for Data Science and Machine Learning, including NumPy, Pandas, Scikit-learn, and visualization libraries.

Relevant Coursework and Certifications

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|--|---|
| • Machine Learning Scientist in Python - <u>DataCamp</u> | • Algorithms 1 & 2 (Princeton University) |
| • Data Scientist Certification | • Discrete Mathematics (Shanghai Jiao Tong University) |
| • Associate Data Scientist Certification | • Data Structures and Algorithms Through C in Depth |
| • AI Fundamentals | • Computer Organization and Architecture |
| • Data Manipulation in Python | • Principles of Computer Operating Systems |
| • Mathematics for Machine Learning and Data Science | • Theory of Computation |
| • Python 101 for Data Science provided by IBM | • Compiler Design |
| • AI for Everyone (DeepLearning.AI) | • Digital Logic Design |
| • IBM Machine Learning Professional Certificate | • Programming for Everybody (University of Michigan) |
| • Python Programming Fundamentals (13 Hours) | • Object Oriented Programming in Java (University of California, San Diego) |
| • Java Fundamentals (16 Hours) | • HarvardX: CS50's Introduction to Computer Science |

Relevant Coursework with Achieved Grade Point

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| • Linear Algebra (3.00/4.00) | • Signal and Systems (3.75/4.00) |
| • Basic Statistics and Probability Theory (3.75/4.00) | • Electrical Circuit - I (3.50/4.00) |
| • Basic Statistics and Probability Practical (3.50/4.00) | • Electrical Circuit – II (2.75/4.00) |
| • Calculus – I (3.25/4.00) | • Digital Electronics Theory (2.50/4.00) |
| • Calculus – II (3.00/4.00) | • Digital Electronics Practical (3.25/4.00) |
| • Computer Programming (2.50) | • Digital Signal Processing (3.00/4.00) |
| • Microcontroller Based System Design (3.00/4.00) | • Communication Theory (2.50/4.00) |
| • Mobile Cellular Communication (3.50/4.00) | |

Research Publications

- **Md. Bipul Islam**, Abdur Rakib, Md. Hafizul Islam, “A Comparative Machine Learning Study on July Revolution in Bangladesh 2024” – Proceedings of the 27th International Conference on Computer and Information Technology (ICCIT), 2024
- **M. Bipul Islam**, M. Azad and M. Ashik-Uz-Zaman, “Smart IoT Framework for Real-Time River Pollution Tracking and Flood Forecasting in Bangladesh”, International Conference on Innovation in Engineering and Technology (ICIET). IEEE, 2023, pp. 1–5, Dhaka, Bangladesh.

Research Projects

Handwritten Digit & Bengali Character Recognition – Independent Research:

- Built CNN architectures in PyTorch to classify Bengali handwritten digits (MNIST) and characters (EMNIST).
- Compared deep learning models with traditional ML approaches such as SVM and KNN.
- Achieved high accuracy while minimizing misclassification rates.
- Tools/Technology: Python, PyTorch, Scikit-learn, NumPy

Real-Time Object Detection & Tracking:

- Implemented YOLOv5 with OpenCV for real-time detection and tracking in video streams.
- Optimized inference speed for deployment on low-resource devices.
- Achieved stable tracking and high accuracy across multiple environments.
- Tools/Technology: Python, OpenCV, PyTorch

Sentiment Analysis of Social Media Data:

- Collected and preprocessed large-scale Twitter data using spaCy and NLTK.
- Trained BERT and RoBERTa transformer models for sentiment classification tasks.
- Achieved high F1-scores demonstrating strong generalization across topics.
- Tools/Technology: Python, Hugging Face Transformers, spaCy, NLTK

Customer Segmentation with Big Data:

- Processed millions of retail transactions using PySpark and Hadoop. Applied K-Means and hierarchical clustering for effective customer segmentation. Identified key customer groups to support targeted marketing strategies.
- Tools/Technology: PySpark, Hadoop, Python, Scikit-learn

COVID-19 Data Dashboard:

- Collected and analyzed global COVID-19 datasets from WHO and Johns Hopkins repositories.
- Performed trend analysis using Pandas/SciPy and created interactive dashboards.
- Delivered visual insights for public health tracking and reporting.
- Tools/Technology: Python, Pandas, SciPy, Plotly/Dash

Leadership and Voluntary Activities

- **IEEE HSTU Student Branch:** Member (2017)
- **Skill Development Club Of HSTU:** Executive Member (2017–2018)
- **EEE CLUB of HSTU:** Member (2015–present)
- **Prothom-Alo Bondhushava, HSTU:** General Secretary (2019), Member (2018)
- **HSTU-OSN:** IT Secretary (2016–2017)
- **Programmers Arena:** Program Manager (2016–2018)

References

<p>1) Md. Shoriful Islam Software Engineer (Android) Software Development Section Department: ICT Walton Digi-Tech Industries Ltd Dhaka, Bangladesh Phone: +880 1608 985 600 Email: wdc.com.its6@waltonbd.com</p>	<p>2) Dr. Md. Dulal Haque Professor Department of Electronics and Communication Engineering Hajee Mohammad Danesh Science and Technology University Phone: +880 1712 534 968 Email: dhaque@hstu.ac.bd</p>
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